



ANALYSIS OF THE SOCIO-ECONOMIC CHARACTERISTICS OF PARTICIPANTS OF GROWTH ENHANCEMENT SUPPORT SCHEME IN ADAMAWA STATE, NIGERIA

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ABSTRACT

This study was carried out to analyze socio-economic characteristics of participants of Growth Enhancement Support Scheme (GESS) in Adamawa State, Nigeria. All crop farmers who registered under the GESS in the study area formed the population of the study. A sample of 165 respondents was selected using a multistage sampling procedure. Data were collected using structured questionnaire and analyzed using descriptive and inferential statistics. Research findings revealed that the mean age of the respondents was 41.91 years, while 55.76% of the respondents were male. The respondents were predominantly married (71.52%) and possessed formal education (92.12%). The mean farm size was 2.58 hectares, mean farming experience was 7.49 years, average household size was 5 persons, while mean annual income was ₦393,771. Respondents had high level of participation in GESS, with 73.33% taking part in registration/e-wallet training and 69.09% GESS participants participating in payment and collection of inputs in the study area. Based on the findings of the research it can be concluded that the population is dominated by young people, who were in their active and productive age group. The respondents also possessed formal education. The farm size of the respondents indicates that they were small scale farmers with average income. Farmers' status of participation in registration/e-wallet training and payment/collection of GESS inputs was high, while involvement in the decision-making process in GESS is low. Farmers should be encouraged to participate fully by expanding their farmlands as well income to benefit more from the scheme since they are mostly small-scale farmers. Farmers should be allowed to participate more actively in the decision-making process of GESS so as to sustain their interest and commitment in the scheme.

Keywords: GESS; logit; ATA; participants

INTRODUCTION

Agriculture in Nigeria is predominantly practiced in the rural areas; hence, there is the need to ensure that farmers in the rural areas get access to farm inputs such as fertilizers, seeds and information to enhance their productivity. In recent years, majority of the governments and donor agencies operating in Nigeria have shown a renewed interest in

improving the livelihoods, living conditions and the economic wellbeing of the rural communities (Jama, Stuth, Kaitho, Ali and Kariuki, 2007). The use of Information Communication Technology (ICT) stands out as the most recent strategy deployed to revolutionize agricultural activities. Consequently, the use of mobile phones by Nigeria farmers has emerged as important in agro-inputs distribution in enhancing agricultural productivity. According to Chete and Fasoyiro (2014), Nigeria has a tele-density of 86.25% from over 120 million active telephone lines by June 2013, 97.5% of which are mobile phones; they further stated that anecdotal evidence shows that mobile phones are also widely used by smallholder farmers in rural communities. Indeed, cell phone penetration in rural households in Nigeria has significantly narrowed the digital gap with urban areas.

The Agricultural Transformation Agenda (ATA) was launched in Nigeria in 2011. It is aimed at a proactive change in the practice of agriculture and its perception in the country in several ways. For the first time in post-civil war, agriculture is being treated as a purely business oriented economic activity rather than a development programme (Osinowo, 2012). In time past, interventions in agriculture had been largely dominated by access to credit, robust extension effort and provision of basic farm inputs, but these have steadily and drastically reduced with the end of World Bank financing of the State Agricultural Development Programmes. It is still believed that agriculture is the live wire of Nigerian economy, contributing between 30-40% to the Gross Domestic Product and providing employment for the vast majority of the populace especially those in the rural areas. However, a policy framework for increasing the strength to release its vast potential for employment generation, economic development, food security and poverty alleviation was elusive (Osinowo, 2012). The Agricultural Transformation Agenda (ATA) with its core critical objectives of a value chain approach and its linkages with key changes in food and trade policies appear to be making impact since its inception (Osinowo, 2012). Government is poised at enhancing efficiency through competition and creation of an enabling environment for a private sector-led survival and modernization of Nigeria agriculture. The development of agricultural key value-chains-such as provision and availability of improved inputs, increased productivity and production, creating a well staple crop processing zone, reduce postharvest losses as well as improve linkages with the markets are all centered on increased productivity.

The Growth Enhancement Support Scheme (GESS) is one of the many critical components of the Federal Government Agricultural Transformation Agenda. It was designed for the specific purpose of providing affordable agricultural inputs like fertilizer and hybrid seeds to farmers in order to increase their yield per hectare and make it comparable to world standard. It is an innovative scheme which seeks to remove the difficulties usually associated with the distribution of fertilizer and hybrid seeds in the country. In the past, there were complaints of diversion, exorbitant cost and adulteration of various inputs, which ultimately led to low productivity, increased poverty, unemployment and lack of interest in farming. The scheme's approach is to target beneficiaries using electronic system and by encouraging the engagement of the private sector in the distribution and delivery of fertilizer and other critical inputs directly to the farmers. With a strong determination to break away from the rot of the past and the ineffective, inefficient and corruption ridden distribution of fertilizer and other government subsidized inputs to farmers, the Federal Ministry of Agriculture and Rural Development (FMARD) was mandated to come up with the mechanism that will be farmers friendly and get fertilizer and other inputs directly to the real farmers. However, the thrust of the scheme is to enhance the capacity of the farmers who

could not afford a bag of fertilizer and seedlings. An attempt to overcome these difficulties led to the introduction of the Growth Enhancement Support Scheme (GESS) and the use of Electronic Wallet (e-wallet) Approach. An e-wallet is defined as an efficient and transparent electronic device system that makes use of vouchers for the purchase and distribution of agricultural inputs (Ezeh, 2013; Adesina, 2013)

The e-wallet approach is designed for smallholder farmers. The criteria for farmer's participation include farmers being above 18 years old; have participated in a survey authorized by the government to capture farmers personal detailed information; must own a cell phone with a registered SIM card and have at least sixty-naira credit in the cell phone. The fulfilment of these conditions guarantees the issuance of an e-wallet voucher to the farmer. The voucher is used to redeem fertilizers, seeds, and other agricultural inputs from agro-dealers at half the cost (Signal, 2014). Adebo (2014) further highlighted that, for an agro input dealer to participate in the programme, he/she must own a cell phone with a registered SIM card, understand the process of using e-wallets, and attend training programmes designed for the project. The agro dealers are required to; conduct honest business and guide against fraud; choose and prepare a location for the business transaction; provide storage facilities and be available at the appropriate time to attend to farmer's needs. The need for a holistic transformation of the Nigerian State has necessitated a strategy that gives cognizance to Growth Enhancement Support Scheme (GESS). The scheme was introduced in May 2012, as a pilot project in 36 states and the Federal Capital Territory. Being powered by the e-wallet approach, the scheme aims at achieving the set goals of overcoming the many difficulties confronting the agricultural sector in Nigeria and ensuring availability of fertilizer, seeds and other inputs to farmers as timely as possible. This is with the understanding that the corruption which has been the bane of agricultural development in Nigeria will be better tackled if and when farmers can directly access the farm inputs through their mobile phones.

In the past, fertilizer procurement and distribution in the country has been fraught with fraud, discrepancies, and inefficiencies. Governments at the Federal and State levels were spending a lot of money on farm inputs which were not reaching the intended beneficiaries (small holder farmers) and thus, had no impact on the national food output. The Federal Government was involved in the direct procurement and distribution of fertilizers, and this weakened the ability of private companies to participate in the sector and compete efficiently for market share. As with most subsidy regimes, the sector was grossly underdeveloped and the opportunities for fraud and diversion were rampant. Adesina (2013) pointed out that the old system used in supplying inputs to the farmers was weak, inefficient and fraudulent, hence a large proportion of the farmers could not benefit from it. He stressed that the inputs meant for the farmers were diverted by the political elite to other countries for personal gains. It was also noted that most of the fertilizers supplied were adulterated, thus damaging the environment. Ogundari and Ojo (2007) in Adebo (2014) equally observed that despite various efforts geared towards agricultural development, it has been estimated that 65% of Nigerians are living with hunger as food production growth is still as low as 2.5% per annum, while food demand has been growing at the rate of 2.8% per annum.

Although a lot of research works had been done such as, Adebo (2014) worked on the effectiveness of e-wallet practice in grassroots agricultural services delivery in Kwara State growth enhancement support scheme, study of Fadairo *et al.* (2015) also carried out research on attitude of crop farmers towards e-wallet platform of the growth enhancement support scheme for inputs delivery in Oke-Ogun area of Oyo State. However, none of these studies

was conducted to assess growth enhancement support scheme among beneficiaries in Adamawa State.

The study aims to analyze socio-economic characteristics of participants of GESS in Adamawa State, Nigeria with a view to determining farmers' status of participation in the programme.

METHODOLOGY

The Study Area

The study was conducted in Adamawa State, and it lies between latitudes $7^{\circ} 28' N$ and $10^{\circ} 55' N$ and longitudes $11^{\circ} 30' E$ and $13^{\circ} 45' E$. It shares a common boundary to the East with Republic of Cameroon; to the North with Borno State; to the West with Gombe State, and to the South with Taraba State (Adebayo, 1997). The Study area has an estimated population of about 3,168,101 peoples (NPC, 2006), projected to 4,558,580 persons in 2020 using the World Bank annual population growth rate for Nigeria (World Bank, 2020), and land mass of about 36,917km². The mean annual rainfall ranges from 700mm in the Northwest to 1600mm in the Southeast. The mean annual rainfall is less than 1000mm in the Central and North-western part of the State (Adebayo, 1999). The State is characterized with mean temperature of $26.7^{\circ}C$ to $27.82^{\circ}C$. The area lies within the northern guinea savannah climatic zone of Nigeria with distinct dry and rainy seasons. The rainy season commences in April and ends in October, while the dry season starts in November and ends in April. The state has four (4) Agricultural zones which, are Mayo-Belwa, Gombi, Guyuk and Mubi respectively. Majority of the people are farmers, cultivating different variety of crops and rearing of animals. The major crops of economic importance in the State include maize, millet, sorghum, rice, yam, cowpea, cotton and groundnut. Some ethnic groups in the area include Bwatiye, Fulani, Higgi, Vere, Marghi, Laka, Kilba, Chamba and Hausa among other ethnic groups.

Population and Sample Size Selection

The population of the study consisted of all registered crop farmers under the GESS in Adamawa State. However, due to enormity of this population, a sample size of 165 respondents was selected using multistage sampling techniques.

A multistage sampling procedure which involved a combination of purposive and simple random sampling techniques was adopted for the study. In the first stage, Mubi, Gombi, Mayo-Belwa and Guyuk ADPs zones of Adamawa state were used to represent the entire State which has 21 Local Government Areas. The second stage involved the purposive selection of one local government area (LGA) each from the four ADPs zones. The selected LGAs included Mubi North, Song, Ganye and Demsa. At the third stage, two communities each from the Local Government Areas were randomly selected. From Mubi North, Kolere and Mubi were selected, from Song, Dumne and Song were selected, from Ganye, Sugu and Ganye were selected and from Demsa, Dwam and Dilli communities were randomly selected. Selection of the respondents was done using simple random sampling technique. The sample size was proportional to the sampling frame, as 0.5 % of the frame was selected giving a total sample size of 165 respondents.

Table 1: Population and sample size selection plan

ADPs Zones	LGAs	Communities	Population	Sample size (0.5% of the population)
1 Mubi Zone	Mubi North	Kolere	3,081	15
		Mubi	3,987	20
2 Gombi zone	Song	Dumne	4,442	22
		Song	4,328	22
3 Mayo-Belwa zone	Ganye	Sugu	3,461	17
		Ganye	3,801	19
4 Guyuk zone	Demsa	Dwam	5,234	26
		Dilli	4,880	24
Total			33,214	165

Method of Data Collection

Data for this study were collected from primary source using a structured questionnaire and secondary information was obtained from textbooks and journal articles.

Data Analysis Techniques

Data for this study were analyzed using descriptive statistics in form of frequencies, percentages and mean scores. Logit regression was used to the relationship between the socio-economic characteristics of the respondents and their status of participation in the GESS programme in the area.

The logit regression model that was used for testing the hypothesis is stated as follows:

$$Z = \frac{e^{a+\beta_1x_1+\dots+\beta_7x_7+U_i}}{1 + e^{a+\beta_1x_1+\dots+\beta_7x_7+U_i}}$$

Where:

Z = Probability of level of participation in GESS (1= high, 0= low)

bs= coefficients of explanatory changes in Z caused by changes in the independent variables.

x_1 = Age (years)

x_2 = Marital status

x_3 = Education (years)

x_4 = Farm size (hectare)

x_5 = Farming experience (years)

x_6 = Household size (number of persons)

x_7 = Annual income (Naira)

u_i = error term

RESULTS AND DISCUSSION

Socio-Economic Characteristics of the Respondents

The socio-economic characteristics of the respondents are presented in Table 2. The research findings revealed that the age bracket with the highest proportion of the respondents (41.82%) was between 31 and 40 years; 38.79% of the respondents fall between 41 and 50

years; 9.70% were aged between 21 and 30 years; 7.88% were between 51 and 60, years, while 1.82% of the respondents were above 60 years. The average age of the respondents was 41.91 years. This shows that most of the farmers fall in the middle age category and would be actively involved in farming activities aimed at improving their livelihood. People within this age range constitutes the active work force and tend to make vital impact in agricultural production, processing and technological development (Enitan, 2010). More than half (55.76%) of the respondents were males, while 44.24% were females. This implied that more male arable crop farmers registered in the GESS than their female counterparts. This may be attributed to the domestic engagements of the women. A similar finding was reported by Odebode (2007) indicating that most farming work or activities are energy demanding, hence men tend to be more involved in production while marketing and processing of food crops are often the chores of women.

It was further found that majority (71.52%) of the respondents were married, 20.61% were single, 4.85% were widow/widowers while 3.03% were divorced. Married people in the society are perceived as more responsible. This sense of responsibility will translate into their ability to organize themselves properly and participate in the GESS. This finding agrees with that of Oladoja, Adedoyin and Adeokun (2008) who asserted most farmers in Nigeria were married, and marriage confers some level of responsibilities and commitments on individuals who were married.

The result of the educational level of the respondents revealed that 2.42% had post-graduate degree, 33.33% completed first degree or HND, 23.64% had NCE/OND, 26.67% had secondary education, 6.06% had primary education, while 7.88% had no formal education. This indicates that majority of the respondents possessed formal education at various levels, and is similar to the finding of Akinbile, Akwiwu and Alade (2014) where most beneficiaries of GESS in Osun State were literate. This might likely have implication on respondents' responsiveness and participation in the scheme, as educational status is expected to enable them to make better and well-informed decision and participate actively in the GESS. Idrisa *et al.* (2012) in Egbule (2013) also noted that education plays an important role in creating awareness in farming communities because educated people are capable of sourcing information on agricultural innovations.

Majority (82.42%) of the respondents had less than 3 hectares of farm size, 13.94% cultivated between 3.1 to 5 hectares, 1.82% cultivated between 5.1 and 7.0 hectares and 1.8% cultivated above 7.0 hectares. The average farm size was 2.58 hectares. This indicates that majority of the respondents were small scale farmers. According to Ojo (2009), farm size owners of 0.1 hectare to 5.9 hectares are classified as small-scale farmers. This implies that the respondents are small scale farmers and are therefore qualified to participate and benefit from the GESS since the scheme was meant for the small holder farmers.

With respect to farming experience, more than half (51.52%) of the respondents had farming experience between 5 and 9 years; 34.55% had less than 4 years; 10.91% had between 10 and 14years; 0.61% had between 15 and 19 years, while 2.42% had above 20 years of farming experience. The mean years of farming experience was 7.49 years. This shows that the respondents were experienced, and capable to influence their abilities to make effective utilization of improved technologies. Experience is an asset in farming as it inspires the farmers' decision-making process and rationalizes the farmers stand, especially in input procurement (Anyoha *et al.*, 2010)

Table 2: Socio-economic characteristics of respondents (n= 165)

Socio-economic characteristics	Frequency	Percentage	Mean
Age (Years)			
≤ 20	0	0.00	
21 – 30	16	9.70	
31 – 40	69	41.82	41.91
41 – 50	64	38.79	
51 – 60	13	7.88	
> 60	3	1.82	
Sex			
Male	92	55.76	
Female	73	44.24	
Marital Status			
Single	34	20.61	
Married	118	71.52	
Divorced	5	3.03	
Widow/Widower	8	4.85	
Level of Education			
No formal education	13	7.88	
Primary education	10	6.06	
Secondary education	44	26.67	
NCE/OND	39	23.64	
First degree/HND	55	33.33	
Post-graduate	4	2.42	
Farm size (Ha)			
≤ 3.0	136	82.42	
3.1 – 5.0	23	13.94	2.58
5.1 – 7.0	3	1.82	
> 7.0	3	1.82	
Farming Experience (Years)			
≤ 4	57	34.55	
5 – 9	85	51.52	
10 – 14	18	10.91	7.49
15 – 19	1	0.61	
≥ 20	4	2.42	
Household Size (Persons)			
≤ 4	87	52.73	
5 – 9	58	35.15	5
10 – 14	16	9.70	
15 – 19	4	2.42	
≥ 20	0	0.0	
Annual Income (Naira)			
≤ 250,000	71	43.03	
250, 001 – 500, 000	54	32.73	
500, 001 – 750, 000	23	13.94	393, 771
750, 001 – 1, 000, 000	12	7.27	
≥ 1, 000, 000	5	3.03	

More than half (52.73%) of the respondents had less than 4 members in their household, 35.15% had between 5 and 9 household members, 9.70% had between 10 and 14 household members, while 2.42% had between 15 and 19 household members. The mean household size was 5 people. This is similar to the finding of Akinbile *et al.* (2014), where about 63% of GES scheme beneficiaries in Osun State had a household size below 6 members. The implication of the finding is that family labour might be readily available for use for household farming activities.

The mean annual income of respondents in the study area was ₦393, 771. The result further showed that 43.03% of the respondents earned an annual income of less than ₦250, 000, 32.73% earned between ₦250,000 and ₦500,000, 13.94% earned between ₦500, 000 and ₦750, 000, 7.27% earned between ₦750, 000 and ₦1,000,000, while only 3.03% earned above ₦1,000,000 per annum. The respondents are therefore average income earners and have the ability to expand their productivity. This agrees with the findings of Salau *et al.* (2012) that farmers will expand their agricultural enterprise as their farm income increases. This is expected because any farmer who does not experience gains in agricultural production may be discouraged to continue. There is every likelihood that such a farmer will withdraw or reduce his participation in such agricultural activities in order to avoid further losses.

Status of Participation in Growth Enlancement Support Scheme

The result of status of participation of respondents in GESS as presented in Table 3 shows that 73.33% had high status of participation in registration/e-wallet training, while 26.67% had low status in registration/e-wallet training. It was found that 26.70% had high status of participation in decision making process of GESS, while 70.30% had low status of participation in decision making process. Also, 69.09% had high status of participation in payment and collection of GESS inputs while 30.91% had low status of participation in payment and collection of GESS inputs.

Table 3: Status of participation in GESS (n= 165)

GESS Activity	High		Low	
	Frequency	Percentage	Frequency	Percentage
Participation in registration/e-wallet training organized by GESS	121	73.33	44	26.67
Involvement in decision making process in GESS	49	29.70	116	70.30
Payment and collection of GESS inputs	114	69.09	51	30.91
Ownership of mobile phones and registered SIM cards	78	47.27	87	52.73

Source; Field Survey, 2022

Furthermore, 47.27% had high ownership of mobile phones and registered SIM cards while 52.73% had low ownership of mobile phones and registered SIM cards. This indicates that there is high participation of respondents in one way or the other in the activities of GESS in the study area. Majority of the respondents had high status of participation in registration/e-wallet training which enable them to increase their yields as well as income under the platform (GESS). Participation in registration in the scheme, possession of mobile phones

and attendance of the training were part of condition for inclusion of beneficiaries in the scheme (signal Alliance, 2014). The high percentage of respondents who do not have mobile phones and registered SIM cards of their own is however a source of concern, as it is a requirement to obtain inputs and participate in GESS. Using someone else’s phone may cause distortion of sent messages and delay in the delivery of the messages to the farmers.

Effects of Socio-Economic Characteristics of Farmers on their Status of Participation in GESS

The effect of the socio-economic characteristics of the farmers on their level of participation in GESS was determined using Logit regression, and the result is presented in Table 4. It was found that only the level of education of the farmers significantly affected the status of participation of the farmers. Education had a positive coefficient ($\beta = 0.1146$) and was significant at 1% level of probability ($P > |z| = 0.009$). This implies that farmers with formal education have a higher probability to participate actively in GESS. Their level of education will grant them more exposure and make them participate more in the scheme and understand the working principles of GESS more. Osinowo (2012) also identified level of education to be one of the factors that affect farmers’ participation in GESS in Nigeria.

The pseudo R^2 for the regression is 0.0634, indicating that the variables in the regression accounted for only 6.34% of the variations in the dependent variable. The overall equation is not significant at 5% level of probability ($\text{prob}>\chi^2 = 0.058$). The socio-economic characteristics of the farmers therefore did not significantly affect the status of participation in GESS.

Table 4: Effect of the socio-economic characteristics of GESS farmers on their status of participation in GESS

Socio-economic characteristics	B	Std. Error	z	P > z
Age	0.0302	0.0257	1.18	0.239
Marital Status	-0.6487	0.4237	-1.53	0.126
Education	0.1146	0.0439	2.61	0.009*
Farm size	0.0307	0.1231	0.25	0.803
Experience	0.0567	0.0544	1.04	0.297
Household Size	-0.1057	0.0747	-1.41	0.157
Income	5.71e-08	6.47e-07	0.09	0.930
Constant	-2.8670	1.0432	-2.75	0.006
Log likelihood= -102.76				
Chi ² = 3.91				
Prob>Chi ² = 0.0528				
Pseudo R ² = 0.0634				

*Indicates significant at 1% level of significance

The null hypothesis for the study is therefore rejected, and the alternative accepted. Iwuchukwu and Igbokwe (2012) also found in their study the socio-economic characteristics of farmers in Nigeria not to affect their participation in GESS.

CONCLUSION

Research findings conclude a population that is dominated by young people, who were in their active and productive age group. The respondents also possessed formal education. The farm size of the respondents indicates that they were small scale farmers which the programme was meant for; while their income revealed that they are average income earners. Farmers' participation in registration/e-wallet training and payment/collection of GESS inputs was high, while involvement in the decision-making process in GESS is low.

Based on the findings of the study it is recommended that older farmers should be motivated to participate actively in the scheme to boost their yields as well their income to cater for their families. Farmers should be encouraged to participate fully by expanding their farmlands to benefit more from the scheme since they are mostly small-scale farmers. Respondents should be allowed to participate more actively in the decision-making process of GESS, as their level of participation in that regard was found to be low. Participation in making decisions that will affect the farmers will sustain their interest and commitment in the scheme.

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